

The opinion in support of the decision being entered today was **not** written for publication in a law journal and is **not** binding precedent of the Board.

Paper No. 11

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GEORGE K. LUCEY JR

Appeal No. 1998-0912
Application 08/413,521

ON BRIEF

Before THOMAS, FLEMING, and HECKER, ***Administrative Patent Judges***.

HECKER, ***Administrative Patent Judge***.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1 through 10, all claims pending in this application.

The invention relates to protecting an electronic circuit from detrimental contaminants. In particular, referring to Figure 2, integrated circuit 18 is positioned on

pedestal 20 in container 21. The container is filled with a hydrophobic liquid completely immersing the circuit, and forming a bubble 26 at the top. In view of the differences in specific gravity between the hydrophobic liquid and the condensate (e.g., water), the latter gravitates toward the bottom of the container and the elevated pedestal segregates the circuit from the condensate regardless of the container orientation.

Representative independent claim 1 is reproduced as follows:

1. A method for extending a life cycle of a high density electronic circuit by isolation from detrimental contaminants, comprising the steps of:

providing a container capable of being sealed,

providing pedestal means positioned on the interior of the container,

adding a hydrophobic liquid in an amount sufficient to immerse the electronic circuit and to form a compressible bubble at the top of the container, and

sealing the container.

so that on the contamination of the container, the elevated pedestal segregates the electronic circuit from the condensate regardless of the container orientation.

The Examiner relies on the following references:

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Bolton et al.	3,229,023	Jan. 11, 1966
Carlson et al.	4,953,005	Aug. 28, 1990
Chardine ¹ (French Patent)	2,518,812	Jun. 24, 1983

Claims 1, 2, 5 through 7 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chardine in view of Bolton.

Claims 3, 4, 8 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chardine in view of Bolton, and further in view of Carlson.

Rather than reiterate the arguments of Appellant and the Examiner, reference is made to the brief and answer for the respective details thereof.

As a preliminary matter, we note that the Examiner is correct regarding the noted errors of the claims appearing in the Appendix to the brief (answer-pages 3 and 4). In addition, we note that the "." after "container" in claim 1,

¹All discussion of this reference relates to a translation obtained by the USPTO, copy enclosed.

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line 10, should be a ",". In claim 1, last line, "the condensate" has no antecedent. In claim 6, "top of the package" should be "top of the container", "so that on the contamination" should be "so that on contamination", and "by a condensate," should be "by the condensate,". We also note the amendment to claim 2, changing "assembly" to "circuit" has not been physically entered.

OPINION

After a careful review of the evidence before us, we will not sustain the rejection of claims 1 through 10 under 35 U.S.C. § 103.

The Examiner has failed to set forth a ***prima facie*** case. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the reasonable teachings or suggestions found in the prior art, or by a reasonable inference to the artisan contained in such teachings or suggestions. ***In re Sernaker***, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally

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recognizable 'heart' of the invention." ***Para-Ordnance Mfg. v. SGS Importers Int'l, Inc.***, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995) (***citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.***, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), ***cert. denied***, 469 U.S. 851 (1984)).

With regard to claim 1, the Examiner reasons that Chardine teaches the claimed invention except for using the hydrophobic liquid 10 in an amount sufficient to form a compressible bubble at the top of the container. The Examiner notes that Bolton uses a hydrophobic liquid with an electronic circuit in an amount sufficient to submerge the circuit, yet

leave a compressible bubble at the top of the container to permit volumetric thermal expansion and contraction of the liquid 11 (answer-page 5). The Examiner states:

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the package for hybrid electronic circuits of Chardine with a bubble at the top 20 of the package to provide for volumetric thermal expansion and contraction of Chardine's liquid 10 in view of the teaching of Bolton et al.
[Answer-page 6.]

Appellant argues that the air space of Bolton, about 15% of the volume, would not allow a "bubble" to form at the top of the container (brief-pages 3 and 4). Also, Appellant contends, Bolton is not designed to protect the electronic circuit **regardless of orientation of the container** (brief-page 4).

We agree with Appellant. Bolton never recites a bubble, or anything similar thereto. Bolton's "gas space or cushion 12", as depicted in Figure 1, appears nothing like a bubble. The only suggestion that Bolton's space 12 might be broadly considered as a bubble, is the fact that Appellant's claims call for such, i.e. hindsight.

Claim 1's requirement that "the elevated pedestal segregates the electronic circuit from condensate **regardless of the container orientation**" (emphasis added), has never been addressed by the Examiner. To the contrary, Bolton suggests that the orientation of the container remains vertical. At column 4, lines 24-28, Bolton states:

When gas insulation rather than liquid insulation is used there is, of course, no liquid level in the tank above which the port 13 should be placed and consequently the port and its covering

me[m]brane can be placed anywhere in the tank wall.

This means that when liquid is used in Bolton, port 13 must be kept above the liquid, thus severely limiting container orientation. Nor can port 13 be eliminated. Column 3, lines 20-32 indicate that sealing port 13 would weaken the tensile strength of the kraft paper from 90% of its initial strength to 70%.

Furthermore, if Bolton's air space were used in Chardine, Chardine's purpose would be destroyed. Chardine totally fills its container with liquid to make the circuit "capable of resisting significant [external] pressures" (translation-page 2). An air space would detract from this pressure capability. Moreover, Chardine provides for liquid thermal expansion via elastic deformation of the container. Note page 5 of the translation wherein it states, "a variation in the volume of the fluorocarbon due to a later temperature variation will be absorbed by an elastic deformation of the hood." Thus Chardine already provides for thermal expansion of the liquid.

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The Examiner has not shown (or even alleged) that this is deficient, nor that Bolton's air space is superior.

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." ***In re Fritch***, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), ***citing In re Gordon***, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." ***Para-Ordnance Mfg. v. SGS Importers Int'l***, 73 F.3d at 1087, 37 USPQ2d at 1239, ***citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.***, 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13.

In view of the forgoing, we will not sustain the Examiner's rejection of claim 1. Independent claim 6 recites the same unmet limitations, and likewise we will not sustain the Examiner's rejection of claim 6.

The remaining claims on appeal, all dependent, also contain the above limitations discussed in regard to claims 1

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and 6 and thereby, we will not sustain the rejection as to these claims.

We have not sustained the rejection of claims 1 through 10 under 35 U.S.C. § 103. Accordingly, the Examiner's decision is reversed.

REVERSED

JAMES D. THOMAS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
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